



# Builder 3 & 2, Volume 1

Only one answer sheet is included in the NRTC. Reproduce the required number of sheets you need or get answer sheets from your ESO or designated officer.

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Reviewed and approved for continued use on  
8 March 1994.

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Specific Instructions and Errata for  
Nonresident Training Course

BUILDER 3 & 2, VOLUME 1, NAVEDTRA 82520

1. No attempt has been made to issue corrections for errors in typing, punctuation, etc., that do not affect your ability to answer the question or questions.
2. To receive credit for deleted questions, show this errata to your local course administrator (ESO/scorer). The local course administrator is directed to correct the course and the answer key by indicating the questions deleted.
3. Assignment Booklet, NAVEDTRA 82520.

Delete the following questions, and leave the corresponding spaces blank on the answer sheets:

Questions

1-50  
2-20  
2-32  
2-45  
2-56  
3-36  
3-53  
3-56  
4-15  
5-17  
7-7  
7-44

# BUILDER 3 & 2, VOLUME 1

## NAVEDTRA 82520

Prepared by the Naval Education and Training Program Management  
Support Activity, Pensacola, Florida

Congratulations! By enrolling in this course, you have demonstrated a desire to improve yourself and the Navy. Remember, however, this self-study course is only one part of the total Navy training program. Practical experience, schools, selected reading, and your desire to succeed are also necessary to successfully round out a fully meaningful training program. You have taken an important step in self-improvement. Keep up the good work.

### HOW TO COMPLETE THIS COURSE SUCCESSFULLY

**ERRATA:** If an errata comes with this course, make all indicated changes or corrections before you start any assignment. Do not change or correct the Training Manual (TRAMAN) or assignments in any other way.

**TEXTBOOK ASSIGNMENTS:** The TRAMAN for this course is *Builder 3 & 2*, Volume 1, NAVEDTRA 82520. The TRAMAN pages that you are to study are listed at the beginning of each assignment. Study these pages carefully before attempting to answer the questions in the course. Pay close attention to tables and illustrations because they contain information that will help you understand the text. Read the learning objectives provided at the beginning of each chapter or topic in the text and/or preceding each set of questions in the course. Learning objectives state what you should be able to do after studying the material. Answering the questions correctly helps you accomplish the objectives.

**BLACK DOT INFORMATION:** Black dots (●) may be used in the text and correspondence course to emphasize important or supplemental information and to highlight instructions for answering certain questions. Read these black dot entries carefully; they will help you answer the questions and understand the material.

**SELECTING YOUR ANSWERS:** After studying the TRAMAN, you should be ready to answer the questions in the assignment. Read each question carefully, then select the BEST answer. Be sure to select your answer from the subject matter in the TRAMAN. You may refer freely to the TRAMAN and seek advice

and information from others on problems that may arise in the course. However, the answers must be the result of your own work and decisions. You are prohibited from referring to or copying the answers of others and from giving answers to anyone else taking the same course. Failure to follow these rules can result in suspension from the course and disciplinary action.

### SUBMITTING COMPLETED ANSWER SHEETS:

Complete all assignments as quickly as possible to derive maximum benefit from the course. As a minimum, you must submit at least one assignment per month. This is a requirement established by the Chief of Naval Education and Training. Failure to meet this requirement could result in disenrollment from the course.

**TYPES OF ANSWER SHEETS:** If you are a U.S. Navy enlisted member on active duty or a drilling U.S. Naval Reserve enlisted member, you should use the answer sheet attached at the end of this course and follow the instructions in section A below. If you are an enlisted U.S. Naval Reserve member who is not attached to a drilling unit or if you are an officer, a civilian, or a member of the U.S. Army, Air Force, Marine Corps, or Coast Guard, you should use the Automatic Data Processing (ADP) answer sheets included in the course package and follow the instructions in section B.

#### A. Manually Scored Answer Sheets

If you are a U.S. Navy enlisted member on active duty or attached to a U.S. Naval Reserve drilling unit, your course will be administered by your local command. You must use the answer sheet designed for

manual scoring. NETPMSA form 1430/5, Stock Ordering Number 0502-LP-216-0100. You may get a supply of the forms from your Educational Services Officer (ESO), or you may reproduce the one in the back of this course booklet. **DO NOT USE THIS FORM FOR COURSES ADMINISTERED BY NETPMSA.**

**Recording Information on the Manually Scored Answer Sheets:** As you complete each assignment, submit the completed answer sheet to your ESO for grading. You may submit more than one answer sheet at a time. Remember, you must submit at least one assignment each month.

**Grading:** Your ESO will grade each answer sheet and notify you of any Incorrect answers. The passing score for each assignment is 3.2. If you receive less than 3.2 on any assignment, the ESO will list the questions you answered incorrectly and give you an answer sheet marked "RESUBMIT." You must redo the assignment and complete the RESUBMIT answer sheet. The maximum score you can receive for a resubmitted assignment is 3.2.

**Course Completion:** After you have submitted all the answer sheets and have earned at least 3.2 on each assignment, your command should give you credit for this course by making the appropriate entry in your service record.

**Student Questions:** If you have questions concerning the administration of this course, consult your ESO.

**B. ADP Answer Sheets**

If you are an enlisted U.S. Naval Reserve member who is not attached to a drilling reserve unit or if you are an officer, a civilian, or a member of the U.S. Army, Air Force, Marine Corps, or Coast Guard, use the ADP answer sheets provided in your course package. You should use one blank original ADP answer sheet for each assignment. Use only the original ADP answer sheet provided in your course package; NETPMSA will not accept reproductions.

**Recording Information on the ADP Answer Sheets:** Follow the "MARKING INSTRUCTIONS" on each answer sheet. Be sure that blocks 1, 2, and 3 are filled in

correctly. This information is necessary for your course to be properly processed and for you to receive credit for your work.

As you work the course, be sure to mark your answers in the course booklet because your answer sheets will not be returned to you. When you have completed an assignment, transfer your answer from the course booklet to the answer sheet.

**Mailing the Completed ADP Answer Sheets:** Upon completing an assignment, mail the completed answer sheet to:

COMANDING OFFICER  
NETPMSA CODE 074  
6490 SAUFLEY FIELD RD  
PENSACOLA FL 32559-5000

Use envelopes to mail your answer sheets. You must provide your own envelopes or request them from your ESO. You may enclose more than one answer sheet in a single envelope. Remember, regardless of how many answer sheets you submit at a time, NETPMSA should receive at least one assignment a month.

NOTE: DO NOT USE THE COURSE COMMENTS PAGE AS AN ENVELOPE FOR RETURNING ANSWER SHEETS OR OTHER COURSE MATERIALS.

**Grading** NETPMSA will grade the answer sheets and notify you by letter concerning your grade for each assignment, your incorrect answers, and your final grade. The passing score for each assignment is 3.2. If you receive less than 3.2 on any assignment, you must rework the assignment. NETPMSA will enclose a new ADP answer sheet in the letter notifying you of the questions you answered incorrectly. You will be required to redo the assignment and resubmit the new answer sheet. The maximum score you can receive for a resubmitted assignment is 3.2.

**Course Completion:** When you complete the last assignment, fill out the "Course Completion" form in the back of the course and enclose it with your last answer sheet. NETPMSA will issue you a letter certifying that you satisfactorily completed the course. You should make sure that credit for the course is recorded in your service record. **YOU MAY RETAIN THE TEXT.**

**NOTE:** YOUR OFFICIAL COURSE COMPLETION DATE WILL BE THE DATE YOUR LAST ASSIGNMENT IS PROCESSED THROUGH THE NETPMSA ADP SYSTEM--NOT THE DATE YOU DEPOSIT THE LAST ASSIGNMENT IN THE MAIL. This is especially important if you are taking the course for Naval Reserve retirement credit. You must mail your answer sheets at least 60 days before your anniversary date. This will provide you With enough time for delays In the mail or reworking failed assignments. DO NOT MAIL YOUR ASSIGNMENTS TO THE NAVAL RESERVE PERSONNEL COMMAND (NRPC) .

**Student Questions:** Refer questions concerning this course to NETPMSA by mail (use the address on page ii) or by telephone: DSN 922-1366 or commercial (904) 452-1366.

#### NAVAL RESERVE RETIREMENT CREDIT

If you are a member of the Naval Reserve, you will receive retirement points if you are authorized to receive them under current directives governing retirement of

Naval Reserve personnel. For the purpose of Naval Reserve retirement, this edition of the course is evaluated at 12 points. These points will be credited to you upon your satisfactory completion of the entire course. **NOTE:** YOUR OFFICIAL COURSE COMPLETION DATE WILL BE THE DATE YOUR LAST ASSIGNMENT IS PROCESSED THROUGH THE NETPMSA ADP SYSTEM--NOT THE DATE YOU DEPOSIT THE LAST ASSIGNMENT IN THE MAIL. Refer to the Course Completion paragraph under section B. ADP Answer sheets.

#### COURSE OBJECTIVES

Upon completing this NRTC, you should be able to demonstrate an understanding of the subject by correctly answering questions on the following: construct on administration and safety; drawings and specifications; woodworking tools , materials, and methods; fiber line, wire rope, and scaffolding; leveling and grading; concrete; working with concrete; masonry; and planning, estimating, and scheduling.

Naval courses may include several types of questions-multiple-choice, true-false, matching, etc. The questions are not grouped by type but by subject matter. They are presented in the same general sequence as the textbook material upon which they are based. This presentation is designed to preserve continuity of thought, permitting step-by-step development of ideas. Not all courses use all of the types of questions available. The student can readily identify the type of each question, and the action required, by inspection of the samples given below.

**MULTIPLE-CHOICE QUESTIONS**

Each question contains several alternatives, one of which provides the best answer to the question. Select the best alternative, and blacken the appropriate box on the answer sheet.

**SAMPLE**

- s-1. Who was the first person appointed Secretary of Defense under-the National Security Act of 1947?
- 1. George Marshall
  - 2. James Forrestal
  - 3. Chester Nimitz
  - 4. William Halsey

Indicate in this way on the answer sheet:

	1	2	3	4	
	T	F			
s-1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	---

**TRUE-FALSE QUESTIONS**

Mark each statement true or false as indicated below. If any part of the statement is false the statement is to be considered false. Make the decision, and blacken the appropriate box on the answer sheet.

**SAMPLE**

- s-2. All naval officers are authorized to correspond officially with any systems command of the Department of the Navy without their respective commanding officer's endorsement.
- 1. True
  - 2. False

Indicate in this way on the answer sheet:

	1	2	3	4	
	T	F			
s-2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	---

**MATCHING QUESTIONS**

Each set of questions consists of two columns, each listing words, phrases or sentences. The task is to select the item in column B which is the best match for the item in column A that is being considered. Items in column B maybe used once, more than once, or not at all. Specific instructions are given with each set of questions. Select the numbers identifying the answers and blacken the appropriate boxes on the answer sheet.

**SAMPLE**

In questions s-3 through s-6, match the name of the shipboard officer in column A by selecting from column B the name of the department in which the officer functions. Some responses may be used once, more than once, or not at all.

**A. OFFICER**

**B. DEPARTMENT**

Indicate in this way on the answer sheet:

- |                               |                           |
|-------------------------------|---------------------------|
| s-3. Damage Control Assistant | 1. Operations Department  |
| s-4. CIC officer              | 2. Engineering Department |
| s-5. Disbursing Officer       | 3. Supply Department      |
| s-6. Communications Officer   |                           |

	1	2	3	4	
	T	F			
s-3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	---
s-4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	---
s-5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	---
s-6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	---

# ASSIGNMENT 1

Textbook Assignment: Chapter 1 - Construction Administration and Safety  
Chapter 2 - Drawings and Specifications

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- 1-1. When you become a Builder petty officer, you automatically assume which of the following additional responsibilities?
1. Company clerk
  2. Project manager
  3. Project estimator
  4. Crew leader
- 1-2. When planning a project, you must consider both the tools and equipment you will need and the capability of the crew?
1. True
  2. False
- 1-3. To ensure a job is completed on schedule, you should take which of the following actions?
1. Order extra equipment
  2. Conduct disaster control training
  3. Demand quantity work
  4. Encourage teamwork and establish goals
- 1-4. A crewmember is incorrectly doing a job. As crewleader, what action should you take?
1. Place the crewmember on report
  2. Assign extra work to the crewmember
  3. Stop the crewmember and give correct job procedures
  4. Transfer the crewmember to another crew
- 1-5. Which of the following actions will aid you. as a crew leader, in developing teamwork?
1. Rotating crewmembers on various phases of the job
  2. Developing an environment where the crewmembers feel free to seek you out for advice
  3. Maintaining a high level of morale
  4. All of the above
- 1-6. A standard Builder tool kit contains the hand tools required for what maximum size crew?
1. Five persons
  2. Two persons
  3. Six persons
  4. Four persons
- 1-7. As a crew leader, you are NOT authorized to draw the tools required by the individual crewmembers.
1. True
  2. False
- 1-8. What form should a crew leader use to order materials?
1. DD 1148
  2. DD 1250
  3. NAVSUP 1149
  4. NAVSUP 1250
- 1-9. Information on the National Stock Number system is found in which of the following RTMs?
1. *Tools and Their Uses*
  2. *Military Requirements for Petty Officer 3 & 2*
  3. *Blueprint Reading and Sketching*
  4. *Constructionman* TRAMAN



- 1-10. When filling out a time card, what code should you give labor required to support construction operations but that does not itself produce an end product?
1. Direct
  2. Indirect
  3. Overhead
  4. Military
- 1-11. Labor that contributes directly to the completion of the end product is considered what type?
1. Direct
  2. Indirect
  3. Overhead
  4. Military
- 1-12. Compared to productive labor, overhead labor does not contribute directly or indirectly to the completion of an end product.
1. True
  2. False
- 1-13. After being filled in, a daily labor distribution report should be initialed by whom?
1. The assistant company commander
  2. The platoon commander
  3. The company chief
  4. The company commander
- 1-14. The daily labor distribution reports from all companies are compiled and tabulated by the
1. company clerk
  2. operations chief
  3. management division of the operations department
  4. operations officer
- 1-15. As a petty officer, you must be familiar with the safety program at your activity.
1. True
  2. False
- 1-16. The safety policy committee is presided over by what person?
1. The safety officer
  2. The company chief
  3. The administrative officer
  4. The executive officer
- 1-17. What is the primary purpose of the safety policy committee?
1. Develop safety rules and policy for the battalion
  2. Discipline personnel who are involved in accidents
  3. Elect a battalion safety chief and committee
  4. Review all vehicle accident reports and determine the causes of accidents
- 1-18. What is the primary purpose of the safety supervisors' committee?
1. Establish work procedures
  2. Encourage safe practices
  3. Review safety suggestions
  4. All of the above
- 1-19. Which of the following committees reviews vehicle mishaps?
1. The safety supervisors' committee
  2. The safety policy committee
  3. The responsible crew
  4. The equipment committee
- 1-20. As a crew leader, you are NOT responsible for the safe working practices of individual crewmembers?
1. True
  2. False
- 1-21. When an unsafe working condition exists, which of the following Individuals can stop the work until the unsafe condition is corrected?
1. The crewmember
  2. The crew leader
  3. The project safety supervisor
  4. Any of the above

- 1-22. Who among the following individuals is responsible for conducting stand-up safety lectures?
1. The safety chief
  2. The safety officer
  3. The crew leader
  4. The company commander
- 1-23. Of the following, which is the best safety technique a crew leader can apply?
1. Stand-up meetings
  2. Reprimanding violators in view of their peers
  3. Designating a crewmember as the safety representative
  4. Leadership by example
- 1-24. At any given time, building structural members must be able to support which of the following loads?
1. Dead loads only
  2. Live loads only
  3. Total dead plus total live loads
  4. Dead load minus live load
- 1-25. Which of the following building structural members provide immediate support for live loads?
1. Footings
  2. Horizontal members
  3. Vertical members
  4. Diagonal members
- 1-26. Which of the following statements best applies to an outside wall column?
1. It is usually located directly over the inside lower floor columns
  2. It rests on the ground and extends to the roof line
  3. It is a high-strength horizontal structural member
  4. It is a high-strength vertical structural member usually extending from the footing to the roof line
- 1-27. What type of column is used to support the lowest horizontal building member?
1. Bottom floor inside
  2. Outside-wall
  3. Upper floor
  4. Short
- 1-28. The building components supporting the chief vertical structural members (studs) are known as
1. piers
  2. sills
  3. beams
  4. bar joists
- 1-29. The building component above the wall studs and supporting roof framing members is called a
1. header
  2. rafter plate
  3. stud
  4. sill
- 1-30. Rafters are horizontal or inclined members providing roof support.
1. True
  2. False
- 1-31. The peak ends of rafters are supported by
1. purlins
  2. rafter plates
  3. a ridgeboard
  4. studs
- 1-32. A load on a beam is too great for structural integrity and supports cannot be used under the beam. What other structural member can be used to adequately support the load?
1. Pier
  2. Truss
  3. Suspension cable
  4. Rafter

- 1-33. In light frame construction, which of the following trusses is the simplest type used?
1. W-type
  2. Scissors
  3. Hip
  4. King-post
- 1-34. Engineering and architectural design sketches are combined to form what type of drawings?
1. Construction
  2. Perspective
  3. Combination
  4. Symbol
- 1-35. Of the following types of drawings, which is NOT one of the three main drawing groups?
1. Architectural
  2. Mechanical
  3. Detail
  4. Electrical
- 1-36. Drawings that are adequate for a Builder to complete a project are known as
1. assembly drawings
  2. working drawings
  3. detail drawings
  4. a Bill of Materials
- 1-37. Where are you most likely to find information on items too small to appear on general drawings?
1. Detail drawings
  2. Assembly drawings
  3. Bill of Materials
  4. Specifications
- 1-38. What type of drawing is either an exterior or sectional view of an object showing details in proper relationship to one another?
1. Design
  2. Construction
  3. Assembly
  4. General
- 1-39. General drawings are plans (views from above) and elevations (side or front views) drawn on a small scale.
1. True
  2. False
- 1-40. The contours, boundaries, utilities, structures, and other significant physical features of a piece of property are shown on what type of plan?
1. Plot
  2. Site
  3. General
  4. Elevation
- 1-41. What plan should be used to set batter boards and line stakes?
1. Plot
  2. Site
  3. Detail
  4. General
- 1-42. For a footing, the material used and the depth are shown on what type of plan?
1. Floor
  2. Site
  3. Foundation
  4. Elevation
- 1-43. The dimensions, number, and arrangement of structural members in wood-frame construction are shown in what type of plan?
1. Foundation
  2. Floor
  3. Wall framing
  4. Detail
- 1-44. To check the overall height of finished floors, doors, and windows, you should consult what plan?
1. Plot
  2. Elevations
  3. Section
  4. Floor

- 1-45. What plan shows the type of wall and roof covering required?
1. Elevation
  2. Floor
  3. Plot
  4. Foundation
- 1-46. What plan specifies the sizes and spacing of joists, girders, and columns used to support the floor?
1. Plot
  2. Floor framing
  3. Section
  4. Elevations
- 1-47. Sectional views, or sections, provide important information about the height, materials, fastening and support systems, and concealed features of a structure.
1. True
  2. False
- 1-48. Detail drawings give construction information about which of the following items?
1. Doors
  2. Windows
  3. Eaves
  4. All of the above
- 1-49. A schedule is a table or list of working drawings giving number, sizes, and placement of similar items.
1. True
  2. False
- 1-50. Which of the following schedules specifies the interior finish material for each room and floor?
1. Door
  2. Floor
  3. Window
  4. Interior
- 1-51. Which of the following items supplement construction drawings with detailed written instructions?
1. Specifications
  2. Notes
  3. Revisions
  4. Details
- 1-52. How many types of NAVFAC specifications govern work performed by Seabees?
1. One
  2. Two
  3. Three
  4. Four
- 1-53. Which of the following NAVFAC specifications are written for a small group of specialized structures that must have uniform construction to meet rigid operational requirements?
1. NAVFACENGCOM guide specifications
  2. EFD regional guide specifications
  3. Standard specifications
  4. Other specifications
- 1-54. Which of the following specifications do NOT cover installation or workmanship for a particular project?
1. Technical society and trade association specifications
  2. Federal and military specifications
  3. Manufacturer's specifications
  4. Project specifications
- 1-55. Specifications from which of the following sources, combined with drawings, define the project in detail and show exactly how it is to be constructed?
1. The American Society for Testing and Materials
  2. The American National Standards Institute
  3. Manufacturers specifications
  4. Project specifications

1-56. Whenever there is conflicting information between the drawings and project specs, the specifications take precedence over the drawings.

1. True
2. False

1-57. A specifications format contains what total number of divisions?

1. 10
2. 12
3. 14
4. 16

1-58. Which of the following specifications divisions provides information on concrete masonry units, brick, stone, and mortar?

1. Concrete
2. Masonry
3. Site work
4. General requirements

1-59. The specifications division that includes items such as medical equipment, laboratory equipment, and food service equipment is called the specialties division.

1. True
2. False

1-60. How many parts do the technical sections of specifications break down to?

1. One
2. Two
3. Three
4. Four

## ASSIGNMENT 2

Textbook Assignment: Chapter 3 - Woodworking Tools, Materials, and Methods

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- 2-1. Which of the following shop tools is similar to a trailer-mounted field saw?
1. Shop radial-arm saw
  2. Table saw
  3. Band saw
  4. Circular saw.
- 2-2. When using the tilt-arbor bench saw, which of the following parts moves?
1. The table
  2. The throat plate
  3. The arbor
  4. The cutoff gauge
- 2-3. On a tilt-arbor bench saw, the saw blade for ordinary ripping and cutting should extend how far above the table top?
1. 1/32 to 1/16 inch plus thickness of material
  2. 1/16 to 1/8 inch plus thickness of material
  3. 1/8 to 1/4 inch plus thickness of material
  4. 1/4 to 3/8 inch plus thickness of material
- 2-4. Which combination of grooving saws and chisel-type cutters makes up a dado head?
1. One saw and one cutter
  2. One saw and two cutters
  3. Two saws and one or more cutters
  4. Three saws and two cutters
- 2-5. When cutting a piece of material on a table saw, where should you stand?
1. In front of the saw
  2. To the side of the saw
  3. In line with the material
  4. Behind the saw
- 2-6. To remove material from the other side of a table saw when it is in operation, you should reach over the table.
1. True
  2. False
- 2-7. Material should be fed to a table saw blade at what speed?
1. As fast as possible
  2. No faster than you can pull
  3. As slow as you can
  4. As fast as it can cut freely and cleanly
- 2-8. The band saw is primarily designed for which of the following cuts?
1. Freehand
  2. Curved
  3. Straight
  4. Miter
- 2-9. How is the size of a band saw designated?
1. Tooth points per inch
  2. Width and gauge of the blade
  3. Diameter of the wheels
  4. Cutoff gauges and gears
- 2-10. Which of the following terms is NOT used in designating a band saw blade?
1. Circumference
  2. Points
  3. Gauge
  4. Width
- 2-11. A clicking sound develops while you are cutting material with a band saw. The sound is an indication of what blade problem?
1. Binding
  2. Crack
  3. Pinch
  4. Too small

- 2-12. A hand or foot break should be installed on all band saws of what size(s)?
1. 18 inches or smaller
  2. 24 inches
  3. 30 inches
  4. 36 inches or larger
- 2-13. Which of the following accessories allow(s) a drill press to become a more versatile woodworking tool?
1. Shaper heads
  2. Router bit
  3. Jig
  4. All of the above
- 2-14. How is drill press speed changed?
1. By a two-speed control switch
  2. By the location of the V-belt the spindle
  3. By a variable speed control knob
  4. By changing the drive pulley
- 2-15. On a drill press, the spindle and quill assembly is controlled by what component?
1. Head lock handle
  2. Head collar support lock handle
  3. Quill lock handle
  4. Spindle/quill feed handle
- 2-16. When operating a drill press. you should ensure the head lock handle is tight at all times.
1. True
  2. False
- 2-17. At what maximum angle from horizontal can you tilt a drill press table?
1. 10°
  2. 25°
  3. 30°
  4. 45°
- 2-18. On a drill press, which of the following features allows you to regulate drilling depth?
1. Table lock handle
  2. Head lock handle
  3. Adjustable locknut
  4. Head support collar handle
- 2-19. The size of a wood lathe is determined by what factor?
1. The diameter of the stock that the lathe will accommodate
  2. The circumference of the stock that the lathe will accommodate
  3. The length of stock that can be mounted on the lathe
  4. The horsepower of the lathe motor
- 2-20. How many major parts does a wood lathe have?
1. One
  2. Two
  3. Three
  4. Four
- 2-21. Of the major wood lathe parts, which one supports all other major parts?
1. The bed
  2. The headstock
  3. The tailstock
  4. The tool rest
- 2-22. What wood lathe part can be moved along the length of the lathe's bed?
1. The headstock
  2. The tailstock
  3. The motor spindle
  4. The faceplate
- 2-23. Which of the following special tools are chiefly used to rough out nearly all shapes formed by spindle turning?
1. Turning gouges
  2. Skew chisels
  3. Parting tools
  4. Scraping tools

- 2-24. Scraping tools of various shapes are used for most accurate turning work, especially for most faceplate turning.
1. True
  2. False
- 2-25. Which of the following special tools allows you to cut recess or grooves with straight sides and a flat bottom?
1. Skew chisels
  2. Scraping tools
  3. Parting tools
  4. Turning gouges
- 2-26. When operating a woodworking lathe, which of the following practices is safe?
1. Standing to one side when starting the motor
  2. Making adjustments with the motor running
  3. Using calipers on irregular surfaces while the lathe is in motion
  4. Milling stock freehand
- 2-27. When using a jointer, loosening the set screws forces the throat piece against the knife for holding the knife in position.
1. True
  2. False
- 2-28. When a jointer makes a cut deeper at the beginning of the cut than at the end, you should adjust the jointer by
1. raising the infeed table
  2. lowering the infeed table
  3. raising the outfeed table
  4. lowering the outfeed table
- 2-29. The fence on a jointer can be set to produce beveled edges at which of the following angles?
1. 45° only
  2. 60° only
  3. 75° only
  4. Any desired angle
- 2-30. Setting jointer knives at too heavy a cut can cause which of the following problems?
1. The jointer to stop
  2. Gaps in the spindle
  3. Kickback
  4. A sharp edge to form on the outfeed table
- 2-31. When operating a jointer, you should always plane with the grain.
1. True
  2. False
- 2-32. Which of the following statements regarding surfacers is NOT true?
1. A surfacer can only surface
  2. A surfacer can remove warps from lumber
  3. A surfacer can surface only one side
  4. A surfacer cuts with a butterhead located below the drive rollers
- 2-33. How should you true a warped board and plane its top surface if the available tools include a jointer and a single surfacer?
1. Simply feed the board once through the surfacer
  2. Feed the board through the surfacer, then turn over the board and feed it through again
  3. True one face of the board on the jointer, then feed the board through the surfacer with the true face down
  4. True one face of the board on the jointer, then feed the board through the surfacer with the trued face up
- 2-34. When operating a surfacer, what component should you have in place over the cutting head?
1. Plastic guard
  2. The infeed table
  3. The vacuum hood
  4. A metal guard



- 2-35. A piece of material becomes stuck during surfacing. Which of the following procedures should you follow to remove it?
1. Stop the surfacer and lower the feed bed
  2. Stop the surfacer and push out the material
  3. Keep the surfacer running and pull out the material
  4. Keep the surfacer running and use another piece of stock to push out the material
- 2-36. A shaper is primarily designed for which of the following operations?
1. Rabbeting and grooving
  2. Edging curved stock and cutting ornamental edges
  3. Surfacing the face of large pieces of stock
  4. Edging flat, smooth surfaces
- 2-37. When shaping an edge on a shaper, how should you feed the stock to the cutter head?
1. Feed stock in the same direction as the spindle is rotating only
  2. Feed stock against the rotation of the spindle only
  3. Feed stock in the same direction as the spindle is rotating, then reverse and feed against the rotation of the spindle
  4. Feed the stock through in either direction
- 2-38. If tuned or irregular edges are to be shaped, you should remove the straight fence and replace with what component?
1. A starting pin placed in the table top
  2. A C-clamp with a hand screw
  3. A three-wing cutter
  4. A straightedge board
- 2-39. The size of a circular saw is determined by what factor?
1. The size of the motor
  2. The size of the smallest blade
  3. The size of the largest blade
  4. The size of the guard
- 2-40. On a circular saw, which of the following types of blades is considered an all purpose blade used for cutting all thickness of wood with or across the grain?
1. Abrasive
  2. Crosscut
  3. Rip
  4. Combination
- 2-41. Hollow-ground blades have no set and make the smoothest cuts on thick or thin stock.
1. True
  2. False
- 2-42. When cutting materials with a portable electric circular saw, you should use which of the following procedures?
1. Hold the saw with the right hand and guide the work with the left hand
  2. Hold the saw with both hands firmly against the work
  3. Hold the saw with both hands after removing the blade guard
  4. Hold the saw with both hands lightly against the work
- 2-43. If you do not maintain a firm grip on a saber saw during cutting, the saw will tend to
1. burn the wood
  2. overheat
  3. excessively vibrate
  4. stop cutting

- 2-44. To start a cut with a saber saw, what technique should you use?
1. Press the blade into the material and start the motor
  2. Pull back on the blade and start the motor
  3. Start the motor and push the material into the blade
  4. Start the motor and push the blade into the material
- 2-45. When using a reciprocating saw to start a cut, you should place the blade near the material, start the motor, and then move the blade into the material.
1. True
  2. False
- 2-46. The cutting depth of a router is maintained by adjusting what component?
1. The depth setscrew
  2. The depth ring
  3. The chuck nut
  4. The edge guide
- 2-47. Which of the following router features allows you to guide the router in a straight line and is particularly useful for cutting grooves on long pieces of lumber?
1. The depth setscrew
  2. The depth ring
  3. The chuck nut
  4. The edge guide
- 2-48. When operating a router, you should use one hand to steady the router and one hand to secure the material.
1. True
  2. False
- 2-49. Safe operation of any portable power plane requires a single pass cut be less than what maximum depth?
1. 1/8 in
  2. 1/16 in
  3. 3/32 in
  4. 1/4 in
- 2-50. To get a bevel cut using a portable power plane, what action should you take?
1. Loosen the base, set base at desired level, then retighten
  2. Tilt the planer to the desired angle
  3. Tilt the material to the desired angle
  4. Adjust the blade to the desired angle
- 2-51. Which of the following characteristics distinguishes a standard drill from a specialty drill?
1. Spade design
  2. Pistol-grip design
  3. Right-angle
  4. Variable speed
- 2-52. Which of the following sander types is ideal for the removing old finishes from wood flooring, siding, and concrete?
1. Belt
  2. Disk
  3. Orbital
  4. Oscillating
- 2-53. The size designation of a belt sander is determined by the size of the wheels.
1. True
  2. False
- 2-54. When using a disk sander to remove old paint, what method should you use?
1. Lay the disk flat on the surface and apply light pressure
  2. Lay the disk flat on the surface and apply heavy pressure
  3. Lay the disk on its edge and apply enough to bend it at a 45° angle
  4. Tip the machine slightly and apply just enough pressure to bend the disk slightly

- 2-55. All air-powered nailers use the same air pressure
1. True
  2. False
- 2-56. When using power nailers or staplers, which of the following operations is NOT safe?
1. Using standard air pressure
  2. Keeping the nose of the nailer or stapler pointed away from your body or other people
  3. Leaving the tool connected to the air when loading or not in use
  4. Using standard nails or staples
- 2-57. Timber is wood cut to which of the following dimensions?
1. 1-by-12 inches by 8 ft
  2. 2-by-12 inches by 8 ft
  3. 3-by-5 inches by 12 ft
  4. 5-by-7 inches by 16 ft
- 2-58. Which of the following factors is NOT an advantage of seasoned lumber?
1. Decreased shrinkage
  2. Increased strength
  3. Reduced weight
  4. Increased warpage
- 2-59. Lumber is considered dry enough for most uses when its moisture content is in what range?
1. 12% to 15%
  2. 17% to 19%
  3. 20% to 23%
  4. 25% to 28%
- 2-60. As a Builder, you should be able to judge the moisture content of lumber by which of the following characteristics?
1. Taste, color, and weight
  2. Color, weight, smell, and feel
  3. Color, grain, and smell only
  4. Taste, grain, color, and smell

## ASSIGNMENT 3

Textbook Assignment: Chapter 3 - Woodworking Tools, Materials, and Methods  
(continued)

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| <p>3-1. A blemish in a piece of lumber is classified as a defect when it affects what quality?</p> <ol style="list-style-type: none"><li>1. Utility value</li><li>2. Strength</li><li>3. Durability</li><li>4. Size</li></ol> <p>3-2. A root section of a branch appearing on the surface of a board is what kind of defect?</p> <ol style="list-style-type: none"><li>1. Pitch pocket</li><li>2. Knot</li><li>3. Check</li><li>4. Shake</li></ol> <p>3-3. A twist or curve that develops in a flat board is what kind of defect?</p> <ol style="list-style-type: none"><li>1. Shake</li><li>2. Wane</li><li>3. Check</li><li>4. warp</li></ol> <p>3-4. Which of the following types of wood should be used where strength is the primary requirement?</p> <ol style="list-style-type: none"><li>1. Yard lumber</li><li>2. Shop lumber</li><li>3. Structural lumber</li><li>4. Factory lumber</li></ol> <p>3-5. Using manufacturing classifications, wood that has not been dressed but has been sawed, edged, and trimmed is considered what type?</p> <ol style="list-style-type: none"><li>1. Worked lumber</li><li>2. Rough lumber</li><li>3. Dressed lumber</li><li>4. Matched lumber</li></ol> | <p>3-6. Which of the following qualities is NOT considered when grading lumber?</p> <ol style="list-style-type: none"><li>1. Uniformity</li><li>2. Strength</li><li>3. Stiffness</li><li>4. Appearance</li></ol> <p>3-7. Where will you find the grade of lumber to be used on a construction project?</p> <ol style="list-style-type: none"><li>1. Blueprints</li><li>2. File folder 1</li><li>3. Specifications</li><li>4. DD 1250</li></ol> <p>3-8. From the following grade listings, which is nearly free of defects and blemishes?</p> <ol style="list-style-type: none"><li>1. Grade A select</li><li>2. Grade B</li><li>3. No. 1 common</li><li>4. No. 5 common</li></ol> <p>3-9. FAS grade of hardwood lumber should have what portion of clear cutting?</p> <ol style="list-style-type: none"><li>1. 48 1/3%</li><li>2. 65 2/3%</li><li>3. 66 2/3%</li><li>4. 83 1/3%</li></ol> <p>3-10. The nominal size of lumber is larger than actual dressed dimensions.</p> <ol style="list-style-type: none"><li>1. True</li><li>2. False</li></ol> <p>3-11. What is the primary advantage of laminated lumber?</p> <ol style="list-style-type: none"><li>1. Light weight</li><li>2. Low cost</li><li>3. Increased load-carrying capacity</li><li>4. Increased resistance to decay</li></ol> |
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- 3-12. The greatest use of lamination is in the fabrication of large beams and arches.
1. True
  2. False
- 3-13. Most lamination splices are made with what type of joint?
1. Tongue-and-groove
  2. Scarf
  3. Shiplap
  4. Half-lap
- 3-14. By weight, plywood is one of the strongest building materials available. Which of the following factors is primarily responsible for this strength?
1. Cross lamination
  2. High-strength glue
  3. Number of plies
  4. Grade of wood
- 3-15. In a sheet of plywood, the outer plies are called
1. crossbands only
  2. cores only
  3. crossbands and cores
  4. faces or face and back
- 3-16. What is the essential difference between exterior and interior plywood?
1. The grain
  2. The thickness
  3. The plies
  4. The glues
- 3-17. Plywood is manufactured only in various thicknesses in a range from 1/4 to 3/4 inch.
1. True
  2. False
- 3-18. Using stiffness and strength as criteria, plywood can be classified into what maximum number of groups?
1. Five
  2. Two
  3. Three
  4. Four
- 3-19. What veneer grade of plywood permits knots and knotholes to 2 1/2 inch in width (1/2 inch larger under specified conditions)?
1. A
  2. B
  3. D
  4. N
- 3-20. Plywood with a solid surface veneer and circular repair plugs is what grade?
1. A
  2. B
  3. C
  4. N
- 3-21. On plywood, which of the following trademark stamps gives you the span rating?
1. Industrial
  2. Construction
  3. Interior
  4. Exterior
- 3-22. What class of plywood is best suited for exposure to extended periods of moisture?
1. Exterior
  2. Exposure 1
  3. Exposure 2
  4. Interior
- 3-23. To ensure a tight joint on cut lumber, which of the following procedures should you follow?
1. Cut on the waste side of the line
  2. Cut directly in the middle of the line
  3. Cut out the entire line
  4. Cut out the line plus a little extra

- 3-24. In laying off a piece of lumber for an end-butt half-lap joint, the shoulder line should be drawn around the board at what distance from the end of the board?
1. One-half board width
  2. One board width
  3. One board thickness
  4. Any desired amount
- 3-25. When laying off a piece of lumber for a half-lap joint, you gauge the cheek line from what point?
1. The edge only
  2. The face only
  3. The edge or end
  4. The face or end
- 3-26. In cutting an end-butt half-lap joint on a piece of lumber, what cut should you make first?
1. Face
  2. Shoulder
  3. Back
  4. Cheek
- 3-27. When mitering a board for a hexagonal (six-sided) frame, what miter angle should you use?
1. 22.5°
  2. 30.0°
  3. 60.0°
  4. 67.5°
- 3-28. When reinforcing miter joints, slip feathers are often preferred over corrugated fasteners because slip feathers
1. are stronger
  2. are easier to apply
  3. are easier to remove
  4. look better
- 3-29. A three-sided recess-running across the grain from one side of a board to the other is known by what term?
1. Grooved joint
  2. Stopped dado
  3. Dado
  4. Stopped groove
- 3-30. A two-sided recess running along an edge of a board is known by what term?
1. Groove
  2. Dado
  3. Stopped dado
  4. Rabbet
- 3-31. A circular saw can be used to cut a stopped groove if you use which of the following attachments?
1. A stopped block
  2. A rabbet ledge
  3. A haunch board
  4. A carriage block
- 3-32. To adjust the fence to the depth of the cheek when cutting a rabbet joint with a circular saw, you should measure from what point?
1. The left side of the raker tooth
  2. The center line of the saw blade
  3. The sawtooth set to the left
  4. The sawtooth set to the right
- 3-33. With proper attachments, jointers can be used for rabbeting.
1. True
  2. False
- 3-34. Which of the following mortise-and-tenon joints penetrates through the mortised member?
1. Stub
  2. Blind
  3. Through
  4. Haunched
- 3-35. Table haunching a mortise-and-tenon joint has what effect on the joint?
1. Makes it weaker
  2. Makes it tighter
  3. Makes it easier to construct
  4. Makes it stronger

- 3-36. When a tenon member is too thin to permit shoulder cuts on both faces, what kind of mortise-and-tenon joint should you use?
1. Barfaced
  2. Stub
  3. Haunched
  4. Table haunched
- 3-37. What type of woodworking joint is considered the strongest?
1. Mortise-and-tenon
  2. Rabbet
  3. Tongue-and-groove
  4. Dovetail
- 3-38. When cutting inside corner molding, you should normally use which of the following handsaws?
1. Backsaw
  2. Hacksaw
  3. Coping saw
  4. Jigsaw
- 3-39. When you build cabinets in place, what step follows installation of the base?
1. Cut the bottom panels and nail them in place
  2. Cut end panels and install
  3. Cut front edge and install
  4. Cut counter top to length
- 3-40. You can increase the strength of a set of cabinets by using what type of joint for the shelves?
1. Blind mortise-and-tenon
  2. Tongue and groove
  3. Dado
  4. Rabbet
- 3-41. When you use 3/4-inch material for shelves, what should be the maximum distance between shelf supports?
1. 16 in
  2. 24 in
  3. 36 in
  4. 42 in
- 3-42. Which of the following drawer fronts, if any, is the easiest to construct?
1. Flush
  2. LIP
  3. Sliding
  4. None of the above
- 3-43. Which of the following cabinet door types is designed to cover the edge of the face frame?
1. Overlay
  2. Flush
  3. Lipped
  4. Sliding
- 3-44. What is the first thing you should do when installing premade cabinets base-first?
1. Locate wall studs and find the highest point on the floor
  2. Install cabinet base and locate the wall studs
  3. Locate the highest point on the floor and install the cabinet base
  4. Locate the highest point on the floor, then level the leading edge of the cabinets
- 3-45. Which of the following fasteners should you use to hang cabinets on a wall?
1. Spiral nails
  2. Annular nails
  3. Screws
  4. Stove bolts
- 3-46. When installing laminated counter tops, you should use base material that has which of the following characteristics?
1. 1/2 inch thick only
  2. 3/4 inch thick only
  3. Smooth, 1/2 inch thick
  4. Smooth, 3/4 inch thick
- 3-47. When cutting a piece of laminate, you should cut it at least 1/4 inch larger than the desired size,
1. True
  2. False

- 3-48. What type of nail should you use for wood trim?
1. Common
  2. Casing
  3. Brad
  4. Box
- 3-49. You are nailing a 1-inch thick board. The nail used should be what length?
1. 1 1/2 in
  2. 2 in
  3. 3 in
  4. 4 in
- 3-50. Which of the following nailing techniques gives maximum holding power?
1. Drive the nails with the grain
  2. Drive the nails at an angle toward each other
  3. Drive the nails vertically
  4. Drive the nails through an edge
- 3-51. Of the following nail types, which has the greatest holding power?
1. Box
  2. Common
  3. Spiral
  4. Finish
- 3-52. Of the following nail types, which is most suitable for temporary work such as forms and scaffolding?
1. Duplex head
  2. Common
  3. Box
  4. Annular
- 3-53. Compared to nails, screws have which of the following advantages?
1. Cheaper
  2. Neater appearance
  3. Can be withdrawn with less damage
  4. Safer
- 3-54. To what depth should you drill a wood screw starter hole?
1. 1/4 to 1/2 the length of the threads
  2. 1/2 to 5/8 the length of the threads
  3. 1/2 to 2/3 the length of the threads
  4. 2/3 to 3/4 the length of the threads
- 3-55. When spikes are not sufficiently strong and ordinary wood screws are too light, what type of screw should you use?
1. Flathead
  2. Sheet metal
  3. Round head
  4. Lag
- 3-56. What type of fastener should you use when great strength or frequent disassembly is required?
1. Carriage bolt
  2. Stove bolt
  3. Machine bolt
  4. Spike
- 3-57. What type of bolt is either square necked, fin necked, or rib necked?
1. Carriage
  2. Stove
  3. Machine
  4. Toggle
- 3-58. Which of the following types of bolts has a machine thread with spring action, winghead nuts, and is particularly useful with sheetrock wall surfaces?
1. Molly
  2. Expansion
  3. Lag
  4. Toggle



3-59. Of the following types of adhesive, which has an asphalt, rubber, or resin base?

1. Glue only
2. Mastic only
3. Plastic only
4. All of the above

## ASSIGNMENT 4

Textbook Assignment: Chapter 4 - Fiber Line, Wire Rope, and Scaffolding  
Chapter 5 - Leveling and Grading

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- 4-1. What kind of fiber is best for making fiber lines?
1. Hemp
  2. Sisal
  3. Manila
  4. Cotton
- 4-2. Number 1 manila rope is what color?
1. White
  2. Light brown
  3. Dark brown
  4. Black
- 4-3. Which of the following types of line is known for its strength, lightweight, and flexibility?
1. Nylon
  2. Hemp
  3. Manila
  4. Sisal
- 4-4. In line fabrication, opposite twisting of fibers prevents moisture from entering the line and keeps the fibers from unlaying under a load.
1. True
  2. False
- 4-5. What type of line is composed of four strands twisted together in a right-hand direction around a core?
1. Hawser-laid
  2. Shroud-laid
  3. Cable-laid
  4. Plain-laid
- 4-6. Which of the following factors is used to designate the size of small stuff?
1. Diameter
  2. Circumference
  3. Number of strands
  4. Number of threads per strand
- 4-7. Which of the following formulas should you use to find the approximate breaking strength (BS) of manila line?
1.  $BS = c^2 \times 900$
  2.  $BS = c^2 \times 2,400$
  3.  $BS = d^2 \times 900$
  4.  $BS = d^2 \times 2,400$
- 4-8. For which of the following reasons is a wide margin between the safe working load and the breaking strength of fiber line desirable?
1. To allow for the strain imposed only by jerky movements
  2. To allow for the strain imposed only when the line is bent over sheaves
  3. To allow for the strain imposed by jerky movements and when the line is bent over the sheaves
  4. To allow for the difference in the various types of fibers used
- 4-9. The SWL for a new fiber line can normally be increased by what percentage?
1. 10%
  2. 20%
  3. 30%
  4. 40%
- 4-10. A used fiber line in good condition has what safety factor figured in?
1. Eight
  2. Six
  3. Three
  4. Four

- 4-11. Of the following cleaners, which is the only one you should use to clean a muddy fiber line?
1. Water
  2. Kerosene
  3. Linseed oil
  4. Liquid soap
- 4-12. Which of the following wire rope sizes is most flexible?
1. 6 x 14
  2. 6 x 19
  3. 6 x 21
  4. 6 x 37
- 4-13. The size of wire rope is designated by what characteristic?
1. Circumference
  2. Diameter
  3. Weight per running foot
  4. Number of tires per strand
- 4-14. To measure the diamater of a wire rope, you should use which of the following methods?
1. Measure in one place near the middle
  2. Measure in two places near the middle, 10 feet apart; then average the results
  3. Measure in three places, 10 feet apart; then average the results
  4. Measure in three places, 5 feet apart; then average the results
- 4-15. What percentage of broken wires in a wire rope renders the rope unsafe for normal use?
1. 10%
  2. 8%
  3. 6%
  4. 4%
- 4-16. Rope is considered unsafe when its diameter is reduced to less than what percentage of its original size?
1. 10%
  2. 25%
  3. 50%
  4. 75%
- 4-17. The bitter end of a wire rope should extend what minimum distance below a wedge socket?
1. 6 in
  2. 2 in
  3. 3 in
  4. 4 in
- 4-18. What type of tackle system is an assembly of blocks in which more than one line is used?
1. Compound
  2. Double whip
  3. Simple
  4. Triblock
- 4-19. In a block-and-tackle assembly, the standing end of a line is attached to which of the following components?
1. Breech
  2. Becket
  3. Sheave
  4. Strap
- 4-20. Why are blocks used in a tackle assembly?
1. To change direction of pull only
  2. To provide a mechanical advantage only
  3. To change direction of pull and provide a mechanical advantage
  4. To provide an alternate means of using line
- 4-21. In a block and tackle, the opening in the block through which the line passes is known by which of the following terms?
1. Swallow
  2. Cheek
  3. Breach
  4. Frame

- 4-22. When selecting a block for use with fiber line, you should normally select a block of what approximate length?
1. 10 times the diameter of the line
  2. 2 times the circumference of the line
  3. 3 times the circumference of the line
  4. 4 times the diameter of the line
- 4-23. In the absence of a reference table, a rule of thumb for determining the diameter of a wire rope sheave is that the sheave should have what approximate diameter?
1. 10 times the diameter of the wire
  2. 20 times the diameter of the wire
  3. 3 times the circumference of the wire
  4. 4 times the circumference of the wire
- 4-24. What type of block can be installed at any point on a wire rope or fiber line without having to thread the rope or line through the block?
1. Swivel fairlead
  2. Swivel shackle
  3. Snatch
  4. Quick latch
- 4-25. When a snatch block is used in a rigging system, it provides what maximum number of mechanical advantages, if any?
1. One
  2. Two
  3. Three
  4. None
- 4-26. What is the simplest method of determining the mechanical advantage of any tackle?
1. Count the sheaves at the running block
  2. Determine the diameter of the sheaves
  3. Count the standing parts at the stationary block
  4. Count the number of parts of the fall at the running block
- 4-27. Hooks and shackles should be inspected at what minimum interval?
1. Daily
  2. Twice a week
  3. Weekly
  4. Monthly
- 4-28. When hoisting, what number of signalmen should be assigned?
1. One
  2. Two
  3. Three
  4. Four
- 4-29. When necessary the EMERGENCY STOP signal should be given by which of the following individuals?
1. The signalman only
  2. The crew leader only
  3. The project safety officer only
  4. Anyone who sees an emergency
- 4-30. What number of guy lines are required to operate shear legs?
1. One
  2. Two
  3. Three
  4. Four
- 4-31. What advantage does a tripod have over shear legs?
1. It is more stable only
  2. It requires no guy lines only
  3. It has greater load capacity only
  4. All of the above

- 4-32. Tripod legs should be spread no more than
1. one-third the length of the legs
  2. one-half the length of the legs
  3. two-thirds the length of the legs
  4. three-quarters the length of the legs
- 4-33. On a swinging scaffold, what are the minimum required sizes for (a) planks and (b) guard rails?
1. (a) 2 by 8ft (b) 1 by 4in
  2. (a) 2 by 4ft (b) 2 by 4in
  3. (a) 2 by 10ft (b) 2 by 8in
  4. (a) 2 by 8ft (b) 2 by 4in
- 4-34. When splicing a vertical pole, what minimum length splice plate should you use?
1. 6 ft
  2. 3 ft
  3. 8 ft
  4. 4 ft
- 4-35. Prefabricated scaffolding with 2 1/2 inch outside diameter steel tubing and post spacing not more than 6 1/2 feet apart is considered to be what duty?
1. Light
  2. Medium
  3. Heavy
  4. Extra heavy
- 4-36. To correct an engineer's level that is not quite horizontal, what action(s) should you take first?
1. Rotate the azimuth tangent screw
  2. Manipulate the focusing knob
  3. Release the azimuth clamp
  4. Slacken the reticle adjusting screws
- 4-37. You can bring the vertical cross hair of the dumpy level into exact alignment with the target by rotating which of the following components?
1. Leveling screws
  2. Leveling head
  3. Azimuth head
  4. Azimuth tangent screw
- 4-38. What type of level was designed to eliminate the use of the tubular spirit level?
1. Wye
  2. Dumpy
  3. Self-leveling
  4. Hand
- 4-39. A self-leveling level automatically gives a level line of sight when the level bubble is approximately within the center of the
1. tripod
  2. level
  3. bull's-eye
  4. cross hair
- 4-40. What type of level is used for short distance sighting and has no magnification device?
1. Hand
  2. Wye
  3. Automatic
  4. Dumpy
- 4-41. When removing a level from its case, you should grip what part?
1. The telescope
  2. The level bar
  3. The footplate
  4. The leveling plate
- 4-42. An engineering level should be stowed in its carrying case when not in use.
1. True
  2. False

- 4-43. In the target reading method of surveying, who reads the rod?
1. The chairman
  2. The instrumentman
  3. The flagman
  4. The rodman
- 4-44. On a Philadelphia rod, the large numerals indicating foot markings are in what color?
1. Red
  2. White
  3. Black
  4. Yellow
- 4-45. When the instrumentman is unable to read the foot markings on a Philadelphia rod, he gives the command RAISE THE RED. What should the rodman do?
1. Read the rod
  2. Lower the rod
  3. Raise the rod
  4. Wave the rod
- 4-46. On a Philadelphia rod, the vernier scale helps you make readings as small as what fraction of a foot?
1. 1/10
  2. 1/12
  3. 1/100
  4. 1/1,000
- 4-47. When the rodman finds it difficult to hold the rod perfectly plumb, it should be waved back and forth to allow the levelman to read the lowest reading touched by the crosshair.
1. True
  2. False
- 4-48. Differential leveling has what purpose?
1. Finding the line of sight between two points
  2. Finding the horizontal difference between two points
  3. Finding the vertical difference between two points
  4. Finding the radius of horizontal curves
- 4-49. The elevation of a proposed, artificially created surface is known by what term?
1. Plan grade
  2. Existing grade
  3. Gradient
  4. Line grade
- 4-50. On a plot plan, the grade elevation of a level horizontal surface is indicated in which of the following ways?
1. Solid contour lines
  2. Broken contour lines
  3. Evenly spaced contour lines
  4. Outlining the area and writing the elevation inside
- 4-51. Building corners should be laid out with reference to which of the following features?
1. A control base line
  2. Contour lines
  3. Batter boards
  4. Vertical control points
- 4-52. Batter boards have what function?
1. Protect stakes from being knocked over
  2. Prevent cave-ins at excavation corners
  3. Provide a means for reestablishing building lines when the stakes have been disturbed
  4. Mark the outside dimensions of excavations
- 4-53. Batter boards are used for both horizontal and vertical control in maintaining specific elevations.
1. True
  2. False

## ASSIGNMENT 5

Textbook Assignment: Chapter 6 - Concrete

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- |   |  |
|---|--|
| <p>5-1. What causes concrete to harden?</p> <ol style="list-style-type: none"><li>1. The active ingredients dry out</li><li>2. The inert ingredients dry out</li><li>3. The active ingredients combine chemically</li><li>4. The inert ingredients combine chemically</li></ol> <p>5-2. Concrete has high ability to resist stretching, bending, and twisting.</p> <ol style="list-style-type: none"><li>1. True</li><li>2. False</li></ol> <p>5-3. What principal factor controls the strength of concrete?</p> <ol style="list-style-type: none"><li>1. Dryness</li><li>2. Water-cement ratio</li><li>3. Age</li><li>4. Reinforcement</li></ol> <p>5-4. The major factor controlling the durability of concrete is its strength.</p> <ol style="list-style-type: none"><li>1. True</li><li>2. False</li></ol> <p>5-5. If more water is added to a concrete mix than is needed to hydrate the cement, the concrete becomes less</p> <ol style="list-style-type: none"><li>1. porous</li><li>2. brittle</li><li>3. fluid</li><li>4. watertight</li></ol> <p>5-6. The production of good concrete is impossible unless good quality materials are used in the mix, and this mix is properly</p> <ol style="list-style-type: none"><li>1. cured and dried</li><li>2. puddled and dried</li><li>3. worked and cured</li><li>4. fortified and cured</li></ol> | <p>5-7. Portland cement is manufactured from finely ground limestone mixed with which of the following materials?</p> <ol style="list-style-type: none"><li>1. Clay</li><li>2. Shale</li><li>3. Marl</li><li>4. Any of the above</li></ol> <p>5-8. For highway construction, Type III portland cement is sometimes preferred to type I because Type III has which of the following characteristics?</p> <ol style="list-style-type: none"><li>1. Finer finish</li><li>2. Requires less working</li><li>3. Shorter curing time</li><li>4. Longer curing time</li></ol> <p>5-9. What type of cement was developed for use in areas subject to severe frost and ice conditions?</p> <ol style="list-style-type: none"><li>1. Air entrained</li><li>2. Keene's</li><li>3. Type V</li><li>4. Type IV</li></ol> <p>5-10. Aggregate is the material combined with cement and water to make concrete.</p> <ol style="list-style-type: none"><li>1. True</li><li>2. False</li></ol> <p>5-11. Concrete is denser and stronger when which of the following conditions is met?</p> <ol style="list-style-type: none"><li>1. All voids are filled</li><li>2. Voids are large and unfilled</li><li>3. Aggregate particles are not solidly bonded</li><li>4. Aggregate particles are not coated with a cement-water paste</li></ol> |
|---|--|

- 5-12. When performing a sieve analysis of aggregate, you should determine the percentage of material retained on the sieve.
1. True
  2. False
- 5-13. When a field test for cleanliness of aggregate shows 1/8 inch of sediment on a sample, the aggregate should be washed because this amount of sediment
1. decreases the workability of concrete
  2. prevents the aggregate from becoming friable
  3. may obstruct hydration and bonding of the cement to the aggregate
  4. will detract from the appearance of the concrete
- 5-14. To prevent aggregate from segregating during stockpiling, you should build up piles in layers by dumping successive loads alongside each other.
1. True
  2. False
- 5-15. In concrete, how is laitance produced?
1. Water collects under the surface of the cement
  2. Cement is hydrated with saltwater
  3. Cement is hydrated with minimum water
  4. Cement is hydrated with excess water
- 5-16. The proportion of air-entraining agent added to a concrete mix should fall within what range?
1. 1% to 2% only
  2. 1% to 3%
  3. 3% to 7%
  4. 8% to 10%
- 5-17. In concrete work, which of the following materials is a generally accepted accelerator?
1. Alkali salts
  2. Fly ash
  3. Calcium chloride
  4. Calcium carbonate
- 5-18. The accepted use for retarders is to increase the rate hydration.
1. True
  2. False
- 5-19. What is the main reason cement should be stored in a dry place?
1. To prevent it from becoming concrete while in storage
  2. To prevent it from setting too fast and producing weak concrete
  3. To prevent it from setting too slow and producing weak concrete
  4. To avoid warehouse pack
- 5-20. When storing sacks of cement in a warehouse, what is the main reason you should sack them close together?
1. So they can draw moisture from each other
  2. To restrict the circulation of air between them
  3. To prevent warehouse pack
  4. To prevent them from getting mixed up
- 5-21. Before using warehouse-packed cement, what should you do to make it lump free?
1. Restack the sacks to allow air to circulate around them
  2. Raise the temperature for 48 hours in the area where the sacks are stored
  3. Roll the sacks around
  4. Cover the sacks for 48 hours with tarpaulins



IN ANSWERING QUESTION 5-22 REFER TO  
TEXTBOOK TABLE 6-3.

- 5-22. Your specifications for a driveway call for a 3,000-psi concrete using 1-inch coarse aggregate. How many bags of cement per cubic yard of concrete will you need?
1. 8.4
  2. 7.1
  3. 6.5
  4. 5.8
- 5-23. In a field mix, the number of gallons of water per sack of cement must be increased to allow for the saturated surface-dry condition of the sand.
1. True
  2. False
- 5-24. When available aggregate is 1 1/2 inches, what rule-of-thumb should you use to calculate materials required for a proper concrete mix?
1. Rule 38 only
  2. Rule 41 only
  3. Rule 38 or 41 depending on whether mixing is done by hand or machine
  4. Rule 42

IN ANSWERING QUESTIONS 5-25 THROUGH 5-27,  
USE THE APPROPRIATE RULE OF THUMB FOR A  
1:2:5 CONCRETE MIX WHEN 2-INCH COARSE  
AGGERATE IS USED.

- 5-25. How many bags of cement are required to make 1 cubic yard of concrete?
1. 8
  2. 7 1/2
  3. 6
  4. 5 1/4
- 5-26. How many cubic feet of sand are required to make 1 cubic yard of concrete?
1. 5
  2. 7 1/2
  3. 10 1/2
  4. 12

- 5-27. To make 40 cubic yards of concrete, how many cubic feet of (a) sand and (b) coarse aggregate are required?
1. (a) 500 (b) 1,240
  2. (a) 480 (b) 1,200
  3. (a) 475 (b) 1,180
  4. (a) 420 (b) 1,050
- 5-28. To measure water for hand-mixing concrete, what size bucket should you use?
1. Half-gallon
  2. Gallon
  3. 10-quart
  4. 14-quart
- 5-29. Which of the following units is the most accurate way to measure aggregate?
1. Cubic feet
  2. Pounds
  3. Cubic yards
  4. Gallons
- 5-30. Concrete mixed with just enough water to completely hydrate the cement can negatively affect what concrete characteristic?
1. Tensile strength
  2. Workability
  3. Durability
  4. Compressive strength
- 5-31. For each layer of concrete placed in a mold for a slump test, how many times should you rod the mold?
1. 25
  2. 50
  3. 75
  4. 100
- 5-32. After completing a concrete slump test, you tap the side of the mix and the concrete crumbles apart. What condition exists?
1. Well-proportioned mix
  2. Undersanded mix
  3. Oversanded mix
  4. Fluid or runny mix

- 5-33. When incorrect concrete slump is detected, what action should you take to correct the problem?
1. Decrease or increase the aggregate only
  2. Change the proportions of the fine coarse aggregate only
  3. Either 1 or 2 above
  4. Add water to the batch
- 5-34. A mixture of only water and cement is commonly referred to as
1. mortar
  2. sand-cement grout
  3. neat-cement grout
  4. concrete
- 5-35. The rated capacity of a concrete mixing machine is determined by what factor?
1. The cubic feet of the mixed concrete
  2. The cubic feet of the dry ingredients
  3. The cubic yards of the dry ingredients
  4. The weight of the dry ingredients
- 5-36. In cement batch-plant operations, the aggregate must pass through a weigh box before being discharged into the mixer.
1. True
  2. False
- 5-37. You are to mix a 1:2:4 batch of concrete by hand. After putting part of the sand onto a mixing platform. in what order should you add and mix the other ingredients?
1. Cement, water, aggregate, sand
  2. Cement, sand, water, aggregate
  3. Aggregate, sand, cement, water
  4. Cement, sand, aggregate, water
- 5-38. In a 16-S concrete mixer, what maximum size aggregate can you use?
1. 3/4-in
  2. 1 1/2-in
  3. 3 -in
  4. 4 -in
- 5-39. In a 16-S concrete mixer, when should water be added to the mix?
1. Just before the cement
  2. Just before the sand
  3. Just before the aggregate
  4. After all the dry ingredients have been added
- 5-40. You are to charge the skip of a 16-S concrete mixer. In what order should you add the dry ingredients?
1. Cement, aggregate, sand
  2. Aggregate, cement, sand
  3. Sand, cement, aggregate
  4. Aggregate, sand, cement
- 5-41. When using a large mixing machine, what minimum time should you mix 2 1/3 cubic yards of concrete?
1. 1 min, 15 sec
  2. 1 min, 30 sec
  3. 2 min, 15 sec
  4. 2 min, 45 sec
- 5-42. It is now 12 noon and you just finished pouring concrete. You should make sure inside of the mixing drum is cleaned no later than
1. 1220
  2. 1230
  3. 1300
  4. 1330
- 5-43. When cleaning a mixing drum, you should place the coarse aggregate in the drum and turn for how long?
1. 5 min
  2. 10 min
  3. 15 min
  4. 30 min
- 5-44. When concrete must be discharged more than 4 feet above the level of placement, why should it be dumped into an elephant trunk?
1. To reduce segregation
  2. To prevent spattering
  3. To accurately place it
  4. To ensure workable consistency

- 5-45. It is now 12 noon and you begin mixing concrete in a mixing drum. The concrete should be dumped from the drum no later than what time?
1. 1230
  2. 1300
  3. 1330
  4. 1500
- 5-46. What type of concrete mixer can mix concrete en route to the jobsite?
1. Ready mixer
  2. Portable mixer
  3. Transit-mix truck
  4. Agitator truck
- 5-47. Compared to cast-in-place concrete panels, precast panels have what main advantage(s)?
1. Less forming material is required
  2. Placing the rebar is easier
  3. Thorough filling and vibrating are easier
  4. All of the above
- 5-48. Of the following surfaces, which is best for precast concrete?
1. Earth
  2. Wood
  3. Concrete
  4. Tile
- 5-49. At what point in concrete casting should the bond-breaking agent be applied to a casting surface?
1. Before the edge forms are placed
  2. After the edge forms are placed
  3. After the steel is placed but before final preparation
  4. Just before pouring the concrete
- 5-50. What is the simplest method for pickup of small cast panels?
1. 2 point
  2. 2 x 4 point
  3. 3 point
  4. 4 x 4 point
- 5-51. What is the most common type of brace used in tilt-up concrete construction?
1. Wood
  2. Cable
  3. Angle iron
  4. Tubular
- 5-52. Because of their flexibility and tendency to stretch, cable braces are unsuitable for most projects?
1. True
  2. False

## ASSIGNMENT 6

### Textbook Assignment: Chapter 7 - Working with Concrete

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- 6-1. In cast concrete, sand streaking is caused by
1. too rapid casting
  2. casting against earth surfaces
  3. escape of moisture from loose forms
  4. escape of mortar from hose forms
- 6-2. In building construction, what is the most common type of forming material?
1. Wood
  2. Earth
  3. Steel
  4. Fiberboard
- 6-3. What type of joint should you use to make watertight concrete forms?
1. Shiplap
  2. Tongue-and-groove
  3. square
  4. Rough-sawed
- 6-4. The hydrostatic head exerted on forms during concrete-placing operations normally continues for what maximum time?
1. 1 1/2 hr
  2. 6 hr
  3. 24 hr
  4. 72 hr
- 6-5. The parts of the substructure that distribute building loads to the ground are called
1. footings
  2. superstructure
  3. pier footings
  4. foundations
- 6-6. Footings for any foundation system should always be placed below the frost line.
1. True
  2. False
- 6-7. An exterior wall that serves as an enclosure and also transmits structural loads to the foundation is called
1. a pier
  2. a load hearing wall only
  3. a bearing wall only
  4. Both 2 and 3
- 6-8. Which of the following phrases best defines the term "keyway" in a concrete footer?
1. The rebar that sticks out of the concrete
  2. The 2-by-2 that goes across the forms
  3. The 45° groove around the outer edge of the footer
  4. The indentation in the center of the footer
- 6-9. Yokes are placed closer together at the bottom of column forms because
1. the yokes are easier to nail
  2. the bursting pressure is greater at the bottom
  3. you can stand on the yokes to work on the rest of the column
  4. the placing rate of concrete is very low
- 6-10. Horizontal form members that tie prefabricated panels together are called
1. studs
  2. shoe plates
  3. walers
  4. spreaders

- 6-11. Braces are not part of concrete form design and provide no additional strength?
1. True
  2. False
- 6-12. What type of form-tying device is used with cone nuts?
1. Tie wire
  2. Snap tie
  3. Shear tie
  4. Tie rod
- 6-13. When constructing stair forms, you should extend the platform what approximate distance past the sides?
1. 6 in
  2. 12 in
  3. 16 in
  4. 18 in
- 6-14. You are pouring concrete but a suitable bond-preventing compound is not available. To prevent the forms from bonding to the concrete, which of the following substances is a suitable alternative?
1. Wax
  2. Lacquer
  3. Marine engine oil
  4. Water
- 6-15. Of the following, which is the best bond breaking agent to use on steel forms?
1. Light-bodied petroleum oil
  2. Vegetable oil
  3. Marine engine oil
  4. Hydraulic oil
- 6-16. A light film of rust or mill scale is acceptable on rebar.
1. True
  2. False
- 6-17. Which of the following rebar ties should you use when a finished mat is to be lifted by crane?
1. Double-strand single tie
  2. Saddle tie
  3. Cross tie
  4. Saddle tie with a twist
- 6-18. Concrete footings should have what minimum concrete thickness between the ground and steel?
1. 6 in
  2. 8 in
  3. 3 in
  4. 4 in
- 6-19. Concrete walls exposed to weather should have what minimum thickness?
1. 1.5 in
  2. 2 in
  3. 3 in
  4. 4 in
- 6-20. In floor slabs, all steel reinforcing bars should be separated by what minimum distance?
1. 1 in
  2. 3/4 in
  3. A distance equal to 1 1/3 times the diameter of the largest bar
  4. A distance equal to 1 1/2 times the diameter of the smallest bar
- 6-21. When a column assembly of reinforcing bars is raised into place, the reinforcing steel is tied to the column form at intervals of
1. 5 ft
  2. 2 ft
  3. 3 ft
  4. 4 ft

- 6-22. Wood blocks can be used to hold beam reinforcing in place under which of the following conditions?
1. When wire stirrups are unavailable
  2. When precast blocks are unavailable
  3. When the construction is permanent
  4. When the concrete is protected from moisture
- 6-23. In footing construction, stones may be used instead of steel supports under reinforcing bars.
1. True
  2. False
- 6-24. A joint that separates a floor slab from a column is called
1. a contraction joint
  2. an expansion joint
  3. an isolation joint
  4. a stress joint
- 6-25. Control joints for interior slabs are typically cut to what depth?
1. 1 in
  2. 2 in
  3. 1/3 to 1/4 of the slab thickness
  4. 2/3 to 7/8 of the slab thickness
- 6-26. A tooled joint for a driveway should be spaced at intervals equal to the width of the slab but no more than what maximum distance?
1. 12 ft
  2. 16 ft
  3. 18 ft
  4. 20 ft
- 6-27. A joint that allows the transfer of part of the load from one structural element to another through the use of keys or dowels is called a
1. keyway
  2. tooled joint
  3. construction joint
  4. control joint
- 6-28. What type of blade is normally used to cut seasoned concrete?
1. Abrasive
  2. Diamond
  3. Graphite
  4. Carbide
- 6-29. High quality concrete requires both a well designed mix and good placing procedures.
1. True
  2. False
- 6-30. What is the maximum distance concrete should be dropped from a chute?
1. 5 ft
  2. 2.5 ft
  3. 3 ft
  4. 4 ft
- 6-31. What is the maximum concrete placing rate for a large pour?
1. 3 vertical ft every 30 min
  2. 4 vertical ft every 30 min
  3. 3 vertical ft per hr
  4. 4 vertical ft per hr
- 6-32. When placing concrete on a slope, you should start at what position?
1. Top only
  2. Bottom only
  3. Top or bottom
  4. Middle
- 6-33. What is the best tool for compacting concrete?
1. Spade
  2. Puddling stick
  3. Tamper
  4. Mechanical vibrator

- 6-34. When using a vibrator on air-entrained concrete, you should insert the vibrator into the concrete (a) what approximate distance for (b) what length of time?
1. (a) 6 in (b) 25 to 30 sec
  2. (a) 18 in (b) 5 to 10 sec
  3. (a) 24 in (b) 25 to 30 sec
  4. (a) 36 in (b) 5 to 10 sec
- 6-35. It is permissible to use a mechanical vibrator to move concrete in forms.
1. True
  2. False
- 6-36. Which of the following procedures is used to bring a concrete surface to the required elevation?
1. Consolidating
  2. Screedlng
  3. Floating
  4. Troweling
- 6-37. The speed at which a vibrating screed is pulled across concrete directly depends on which of the following factors?
1. The amount of concrete poured
  2. The density of the concrete
  3. The slump of the concrete
  4. The length of the beam
- 6-38. Troweling a vibrator screed finished floor slab is usually delayed because of the slow setup time needed for the concrete mix.
1. True
  2. False
- 6-39. Which of the following advantages results from edging concrete slabs?
1. Dressed corners
  2. Less corner chipping
  3. A finished appearance
  4. All of the shove
- 6-40. Which of the following finishing tools gives concrete a smooth, dense, finished surface?
1. Canvas belt
  2. Wooden float
  3. Steel trowel
  4. Aluminum float
- 6-41. Which of the following processes produces a nonskid or rough concrete surface?
1. Skidding
  2. Streaking
  3. Brooming
  4. Grinding
- 6-42. When a dustless, dense, easily cleaned floor is required, what finishing procedure should you use?
1. Sack rubbing
  2. Power troweling
  3. Steel troweling
  4. Grinding
- 6-43. When mortar is being used in rubbing a concrete surface, how long should the surface be kept moist to cure?
1. 8 hr
  2. 1 to 2 days
  3. 3 to 4 days
  4. 7 days
- 6-44. Concrete made with ordinary cement is generally cured for what minimum period?
1. 11 days
  2. 7 days
  3. 3 days
  4. 14 days
- 6-45. When curing flat surfaces, pending allows the concrete to maintain a uniform temperature.
1. True
  2. False

6-46. Which of the following materials is the best insulator?

1. Straw
2. Moist earth
3. Plastic film
4. Dry insulation

6-47. When waterproof paper is used in the concrete curing process, what is the minimum overlap for adjacent sheets?

1. 12 in
2. 8 in
3. 16 in
4. 4 in

6-48. Under ordinary circumstances, the forms for floor slabs can be removed after what minimum time?

1. 1 day
2. 6 days
3. 10 days
4. 14 days

6-49. When patching concrete, you should apply mortar in layers NOT exceeding what maximum thickness?

1. 1 1/2 in
2. 2 in
3. 3/4 in
4. 1/2 in

6-50. After forms are removed, a pressure gun may be used to repair which of the following defects?

1. Honeycomb
2. Joints
3. Tie-rod holes
4. Rock pockets



## ASSIGNMENT 7

Textbook Assignment: Chapter 8 - Masonry

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- 7-1. To smooth cut a concrete masonry unit, you should use which of the following tools?
1. A mason's hammer
  2. A brick chisel
  3. A brick trowel
  4. A pointing trowel
- 7-2. As a Builder, you should use a mason's hammer for which of the following tasks?
1. Smooth-cutting concrete masonry units
  2. Chipping and rough-cutting concrete masonry units
  3. Checking level courses
  4. Laying out corners
- 7-3. To finish a masonry joint, you should use which of the following tools?
1. Trowel
  2. Bolster
  3. Mortar board
  4. Jointer
- 7-4. When placing masonry units, you should use a steel square for which of the following jobs?
1. Leveling short columns
  2. Laying out corners
  3. Plumbing long stretches
  4. Finishing joints
- 7-5. There are three main types of concrete masonry units.
1. True
  2. False
- 7-6. Load-bearing concrete block used in above and below grade exterior walls that may or may not be exposed to moisture should be what grade?
1. M
  2. N
  3. O
  4. S
- 7-7. An 8-by-8-by-16-inch partition block is what actual size?
1. 8 by 8 by 16 in
  2. 7 3/4 by 7 3/4 by 15 3/4 in
  3. 7 5/8 by 7 5/8 by 15 7/8 in
  4. 8 by 7 5/8 by 16 in
- 7-8. A standard concrete masonry unit made with pumice has what approximate weight?
1. 20 to 30 lb
  2. 25 to 35 lb
  3. 35 to 45 lb
  4. 45 to 55 lb
- 7-9. The sides and the recessed ends of a concrete block are called the
1. shell
  2. face shell
  3. edge
  4. web
- 7-10. Spreading a 1-inch layer of mortar on both bed joints of walls and columns is called face shell mortar bedding.
1. True
  2. False
- 7-11. Excess sand in a mortar mix causes which of the following problems?
1. Slow setting
  2. Segregation
  3. Stickiness
  4. Lumps

- 7-12. For above grade exposed masonry where high compressive and lateral strength is not required, you should use what type of mortar?
1. M
  2. N
  3. O
  4. S
- 7-13. You should not temper mortar that has been mixed longer than what maximum time?
1. 1 hr
  2. 2 1/2 hr
  3. 3 hr
  4. 4 1/2 hr
- 7-14. What maximum proportion of calcium chloride should you add to mortar?
1. 1%
  2. 2%
  3. 3%
  4. 4%
- 7-15. A single course in a 10-ft-long block wall requires how many standard blocks?
1. 6 1/2
  2. 7 1/2
  3. 8 1/2
  4. 9 1/2
- 7-16. Using standard block, how many courses are required for a concrete block wall 10 feet high?
1. 14
  2. 15
  3. 16
  4. 17
- 7-17. To lay 600 square feet of wall, you need approximately how many (a) 8-by-4-by-12-inch concrete blocks and (b) cubic feet of mortar?
1. (a) 520 (b) 15
  2. (a) 680 (b) 15
  3. (a) 770 (b) 24
  4. (a) 900 (b) 24
- 7-18. Building specifications call for a 1:2 mortar mix. Using rule 38, how many sacks of cement are required to make up a 2-cubic yard mix?
1. 7
  2. 13
  3. 20
  4. 26
- 7-19. How many cubic feet of sand are required to complete a 1:2 mix for 2 cubic yards of mortar?
1. 26
  2. 51
  3. 52
  4. 104
- 7-20. When bags of cement or lime are stacked on pallets, a setback should begin at what tier?
1. Eighth
  2. sixth
  3. Fifth
  4. Fourth
- 7-21. You are constructing a concrete block wall. After the corners are located, what is the next step?
1. Spread and furrow the mortar bed for the first course
  2. Attach the guide strings to the corner stakes
  3. String out the blocks for the first course without mortar
  4. Position the corner block
- 7-22. A concrete block should be laid with what portion up?
1. The narrow end of the face shell
  2. The web facing
  3. The end shell
  4. The thicker end of the face shell
- 7-23. What part(s) of a block wall is/are laid immediately after the first course?
1. Corners
  2. Second course
  3. Lintels
  4. Lateral supports

- 7-24. You are building the corners of a concrete block wall. How should you ensure the horizontal blocks are correctly spaced?
1. Place a level horizontally across the corners of the block
  2. Place a level vertically across the corners of the block
  3. Place a level diagonally across the corners of the block
  4. Place a mason's line between the corners of the wall
- 7-25. During the construction of a concrete block wall, you must butter all vertical edges of a block at what point?
1. When the corner blocks are being placed
  2. When the closure block is being installed
  3. When all stretchers are placed
  4. When the second course is being laid
- 7-26. To ensure weathertight joints, at what point in construction should you start tooling mortar joints?
1. Immediately after laying each course
  2. As soon as the mortar becomes thumbprint hard
  3. After the excess mortar falls off the block
  4. At the end of the workday
- 7-27. Any excess mortar remaining on a concrete block after the joints are tooled should be removed by what method?
1. Rubbing with a burlap bag
  2. Flushing with water
  3. Striking the mortar with a small jointer
  4. Rubbing with a piece of broken concrete
- 7-28. The insertion of roofing felt in the end core of the concrete block in a control joint serves what purpose?
1. It permits the wall to move without cracking
  2. It eliminates bonding of the mortar on both sides of the joint
  3. It prevents raking of the outside block
  4. It eliminates bonding of the mortar on one side of the joint
- 7-29. Intersecting bearing walls should be tied together by what means?
1. Masonry bonds in alternate courses
  2. Hardware cloth placed across the courses
  3. Metal tie bars bent at right angles
  4. Anchor bolts located in alternate courses
- 7-30. Lintel blocks should extend past the edge of an opening to what minimum distance?
1. 6 in
  2. 12 in
  3. 16 in
  4. 20 in
- 7-31. When reinforcing a block wall, where should you place rebars?
1. At each corner
  2. At each side of a wall opening
  3. At points spaced no more than 32 inches on center in the wall
  4. All of the above
- 7-32. When reinforcing a block wall, you can ensure proper alignment of the rebar by performing what action?
1. Placing a cleanout block at every stud in all courses
  2. Pouring concrete as each course is laid
  3. Placing a cleanout block at every stud in the first course
  4. Pouring concrete around the rebar as it is placed

- 7-33. Weep holes in retaining walls are used to prevent water accumulation behind the wall.
1. True
  2. False
- 7-34. Modular U.S. brick are what nominal size?
1. 2 1/4 by 3 3/4 by 8 in
  2. 2 1/4 by 3 5/8 by 7 5/8 in
  3. 3 by 4 by 9 in
  4. 2 3/4 by 4 by 12in
- 7-35. The backing course for a cavity wall should be made with what type of brick?
1. Face
  2. Building
  3. Glazed
  4. Fire
- 7-36. Where cleanliness and ease of cleaning are necessary, what type of brick should you use?
1. Face
  2. Cored
  3. Glazed
  4. Sand-lime
- 7-37. To withstand high temperatures without cracking or decomposing, you should use what type of brick?
1. Cored
  2. Press
  3. Clinker
  4. Fire
- 7-38. When stacking brick, you should start tapering back when the pile reaches what minimum height?
1. 1 ft
  2. 2 ft
  3. 3 ft
  4. 4 ft
- 7-39. In masonry, a soldier is a row lock brick laid with its bed parallel to the face of the wall
1. True
  2. False
- 7-40. In brick walls, structural bonding takes place by what means?
1. Adhesion of grout to adjacent wythes of masonry
  2. Metal ties embedded in connecting joints
  3. Interlocking the masonry units
  4. All of the above
- 7-41. The pattern formed by the masonry units and mortar joints on the face of a wall is called what type of bond?
1. Stack
  2. Pattern
  3. English
  4. Running
- 7-42. Which of the following bonds is a variation of the running bond in which a header course appears at the fifth, sixth, or seventh course?
1. Running
  2. Flemish
  3. Common or American bond
  4. Dutch bond
- 7-43. You must place a three-quarter brick at the corner of each header course in which of the following pattern bonds?
1. Common
  2. English
  3. Block
  4. Stacked
- 7-44. An English bond pattern wall is composed of what alternate courses?
1. Three-quarter and blind headers
  2. Stretchers and bull headers
  3. Headers and stretchers
  4. Headers and rigid steel ties
- 7-45. To tie brick on the outside face of a wall to the backing course when no header courses are to be installed, what should you use?
1. Copings
  2. Metal ties
  3. Flashing
  4. Rebar

- 7-46. Moisture is prevented from seeping under a horizontal masonry surface by the installation of
1. sills
  2. copings
  3. parapets
  4. flashing
- 7-47. Water that accumulates on a flashing should be allowed to drain to the outside by what means?
1. Parapets
  2. Concealed flashing
  3. Weep holes
  4. Sills
- 7-48. To ensure a good bond between mortar and brick, you should avoid which of the following joints?
1. Slushed
  2. Bed
  3. Cross
  4. Header
- 7-49. You should spread bed joint mortar what maximum number of bricks ahead?
1. 5
  2. 7
  3. 9
  4. 11
- 7-50. For which of the following reasons should you should form a shallow furrow in the mortar of a bed joint?
1. To maintain the required width of brick spacing
  2. To conserve mortar
  3. To keep a gap from forming and allowing water to enter the wall
  4. To allow the mortar to dry slightly before placing the brick
- 7-51. To cut a brick to an exact line with a brick chisel or brick set you should follow which of the following procedures?
1. Break the brick with one blow of the hammer
  2. Let the straight side of the cutting edge face you
  3. Let the straight side of the cutting edge face the part of the brick that is to be saved
  4. All of the above
- 7-52. For weathertightness, what is the best type of joint finish?
1. Flush
  2. Bead
  3. Concave
  4. Weather
- 7-53. When laying out a brick arch, you can make the key brick line up by using an even number of bricks.
1. True
  2. False

## ASSIGNMENT 8

Textbook Assignment: Chapter 9 - Planning, Estimating, and Scheduling

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- 8-1. The process of determining requirements, and devising and developing methods for constructing a project is called
1. estimating
  2. scheduling
  3. planning
  4. production standardization
- 8-2. Precise statements of quantities are what type of estimates?
1. Preliminary
  2. Detailed
  3. Activity
  4. Manpower
- 8-3. When using the *Seabee Planner's and Estimator's Handbook* for manpower estimates, a man-day unit is equal to what hour work day?
1. 7
  2. 7 1/2
  3. 8
  4. 10
- 8-4. The work schedule of a deployed Seabee battalion is based on an average of 65 hours per man per week.
1. True
  2. False
- 8-5. Which of the following types of labor is considered productive labor not contributing directly or Indirectly to the product?
1. Overhead
  2. Direct
  3. Indirect
  4. Manual
- 8-6. The individual who evaluates a job, has a working knowledge of all phases of construction, and can mentally picture separate operations of the project as it progresses is called the
1. scheduler
  2. estimator
  3. planner
  4. builder
- 8-7. The process of determining when an action must be taken and when material, equipment, and manpower are required is called
1. estimating
  2. planning
  3. scheduling
  4. coordination
- 8-8. What type of schedule is used to coordinate the manpower requirements of a project and show the number of personnel required for each activity?
1. Progress
  2. Equipment
  3. Material
  4. Manpower
- 8-9. When analyzing a project, scheduling always precedes planning.
1. True
  2. False
- 8-10. A project folder package contains what total number of individual folders?
1. 8
  2. 9
  3. 10
  4. 11

- 8-11. The right side of project file folder number 1 contains what information?
1. Predeployment visit summary
  2. Project scope sheet
  3. Level II
  4. Tasking letter
- 8-12. What project file folder contains information on all activities pertaining to the project?
1. 1
  2. 2
  3. 3
  4. 4
- 8-13. The right side of project file folder 5 contains the project bill of materials.
1. True
  2. False
- 8-14. The safety plan that you, as a Builder, develop is located (a) on what side of (b) what file folder?
1. (a) Left side  
(b) File folder 6
  2. (a) Left side  
(b) File folder 7
  3. (a) Right side  
(b) File folder 6
  4. (a) Right side  
(b) File folder 7
- 8-15. The left side of project file folder 9 contains the highlighted project specifications.
1. True
  2. False
- 8-16. When using blueprints, what section should you check to ensure changes were recorded?
1. Revisions
  2. Notes
  3. Specifications
  4. Construction drawings
- 8-17. On specifications, a list of unusual or unfamiliar items of work or materials is called
1. revisions
  2. quantity estimates
  3. notes
  4. statistics
- 8-18. What type of estimate is used as a basis for purchasing materials, and determining equipment and manpower requirements?
1. Activity
  2. Equipment
  3. Quantity
  4. Material
- 8-19. Which of the following procedures is the best way to check your estimates?
1. Have another person check the measurements
  2. Have another person make an independent estimate and compare the two
  3. Have another person initial the estimates as you complete them
  4. Have a crewmember sign the estimate
- 8-20. Which of the following problems can lead to omissions in your quantity estimates?
1. Failure to read all notes on drawings
  2. Errors in scaling
  3. Failure to allow for waste and loss of construction material
  4. All of the above
- 8-21. What should an experienced estimator do if he finds that details on a drawing are not drawn to scale?
1. Approximate the dimensions
  2. Use the same scale that was used elsewhere on the drawings
  3. Assume an approximate scale
  4. Obtain the dimensions from another source

- 8-22. Which of the following documents provides information for material, equipment, and manpower requirements?
1. Planning estimates
  2. Scheduling estimates
  3. Activity estimates
  4. Specifications and drawings
- 8-23. For estimating purposes, how should an activity be defined?
1. Single-task, single-trade
  2. Single-task, multi-trade
  3. Multi-task, multi-trade
  4. Multi-task, single-trade
- 8-24. When identifying an activity for an activity estimate, you must ensure that the
1. description is not complicated
  2. description includes all trades required to do the task
  3. manpower is available to accomplish the task
  4. description identifies a specific quantity of work
- 8-25. Material estimates have which of the following uses?
1. Procurement and determination of availability of materials
  2. Justification for and procurement of material
  3. Scheduling of equipment for projects
  4. Planning manpower needs
- 8-26. When estimating, which of the following forms should be used to list the required materials needed to complete each individual activity?
1. Bill of material
  2. Material takeoff
  3. Estimating worksheet
  4. Material estimate
- 8-27. Which of the following NAVFAC publications contains conversion and waste factors for construction materials?
1. P-405, App C
  2. P-437, Vol I
  3. P-458, Vol II
  4. DM-4.3
- 8-28. When ordering construction materials, long lead items are readily available through the supply system.
1. True
  2. False
- 8-29. The average rate of speed for a vehicle moving materials over roadways is computed by using what percentage of the posted speed limit?
1. 10% to 15%
  2. 20% to 30%
  3. 40% to 56%
  4. 60% to 76%
- 8-30. Where can an estimator locate Information on the quantities and characteristics of construction equipment?
1. SAMM program
  2. NMCB TOA
  3. NAVFAC P-405
  4. NAVFAC P-437
- 8-31. Which of the following NAVFAC publications contains estimating information on common facilities and assemblies
1. P-349
  2. P-405
  3. P-437
  4. P-458
- 8-32. NAVFAC P-405, *Seabee Planner's and Estimator's Handbook*, defines a man-day as how many man-hours?
1. 6
  2. 8
  3. 10
  4. 12



- 8-33. The man-hour estimating tables in NAVFAC P-405 are arranged into how many divisions of work?
1. 10
  2. 12
  3. 14
  4. 16
- 8-34. CPA, CPM, and PERT are techniques used in the analysis of a flow of events and activities of a construction project. What is the generic title covering these techniques?
1. Network analysis
  2. Planning and estimating
  3. Flow charting
  4. Project analysis
- 8-35. A network remains constant throughout its duration and is a statement of logic and policy. Modifications of the policy are allowed.
1. True
  2. False
- 8-36. The sequencing of priorities among the activities making up a project can be represented by a/an
1. estimate
  2. network
  3. plan
  4. SAMM program
- 8-37. Placing underslab conduit runs before pouring concrete is considered what type of dependency?
1. Soft
  2. Continuing
  3. Flexible
  4. Hard
- 8-38. The basic concept behind precedence scheduling is known as
1. CPM
  2. PERT
  3. SAMM
  4. ADM
- 8-39. In precedence diagrams, how are activities represented?
1. An octagon box
  2. A rectangular box
  3. A start and finish node
  4. A round node
- 8-40. The general flow of a precedence diagram is represented by
1. an alphabetical sequence
  2. a numerical sequence
  3. arrows
  4. connectors
- 8-41. In a precedence diagram, what information about an activity can be found on the right side of an activity box?
1. The completion
  2. The start
  3. The man-hours
  4. The critical event
- 8-42. In a precedence diagram, activities may be divided into how many distinct groups?
1. One
  2. Two
  3. Three
  4. Four
- 8-43. In a precedence diagram, intermediate goals with no time duration relate to what kind of activities?
1. Working
  2. Milestone
  3. Critical
  4. Support
- 8-44. How are critical activities in a precedence diagram identified?
1. By arrows
  2. By slash marks through the activity box
  3. By a red circle around the activity
  4. By slash marks through the activity connector

- 8-45. Which of the following rules governs the drawing of a network?
1. Activities must be numbered in sequence
  2. The start of an activity must be linked to the ends of all completed activities before the start may take place
  3. Activities taking place at the same time must be linked before the start may take place
  4. Only critical path activities may be linked to each other

- 8-46. When two network activities are remote from each other but must be connected to show dependency, what type of connector should be used?
1. Direct
  2. Joining
  3. splitting
  4. Parallel

- 8-47. For what reason should you use a dummy event or focal activity in a network?
1. To simplify the network
  2. To show lead or lag
  3. To represent a delay
  4. To determine independent activities

- 8-48. In a network, what is the main objective of the forward pass?
1. To determine the number of activities
  2. To allow for material delays
  3. To establish the late start and late finish of each activity
  4. To determine the duration of the network

- 8-49. The longest path through a network is the critical path.
1. True
  2. False

- 8-50. What term identifies the amount of scheduled leeway allowed in a network?
1. Free play
  2. Allowance of time
  3. Float or slack
  4. Dead time or null time







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9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	34	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	59	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	35	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	60	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	36	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	61	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
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13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	38	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	63	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
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16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	41	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	66	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
17	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	42	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	67	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
18	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	43	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	68	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
19	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	44	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	69	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
20	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	45	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	70	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
21	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	46	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	71	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
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